



A REVIEW ON YOGASANA WITH SPECIAL REFERENCE TO METABOLIC SYNDROME

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ABSTRACT

Metabolic Syndrome (MS) is a cluster of four metabolic disorders that are abdominal obesity, impaired glucose tolerance, Hypertension and Dyslipidemia. The pathogenesis of metabolic syndrome leads to insulin resistance, atherogenic dyslipidemia, hypertension, impaired glycemia, pro-inflammatory state or endothelial dysfunction, pro-thrombotic state, abnormal fat metabolism, fatty liver and abnormal ovarian androgen secretion. MS is going to become epidemic in most of the developed countries. Management options are only limited to the hypoglycemics, hypolipidemics and antihypertensive causing undue chemical and economical burden to the body. Diabetologist and endocrinologist are now working for the safe, effective, low cost and natural therapeutic measures. "Yoga" which is an ancient health and spiritual science of India gives better alternative to modern therapeutic measures. Yoga exerts positive and long-term effect on MS also it delays and prevent the disease progress; however, this effects of yoga therapy in MS management remain unclear and a matter of debate and research. This article offers a scientific review on positive effect of different Yogasana in Metabolic Syndrome (MS).

KEYWORDS: Metabolic Syndrome, insulin resistance, dyslipidemia, Yoga, Yogasana.

Introduction:

Metabolic Syndrome (MS) is a collection of metabolic disease factors that includes obesity, insulin resistance, hypertension and dyslipidemia [1] caused by improper diet and life style. MS is recognized as one of the major public health burden worldwide especially in Indian sub-continent [2]. It is most common in adult population throughout the world [3]. It is estimated that approximately 25% of the world's population has MS and it will increased up to 38% by the year 2023 [4]. In the etiopathogenesis of MS reactive oxygen species works as double-edged swords; while they play an essential role in multiple physiological systems, under conditions of oxidative stress, they contribute to cellular dysfunction. Oxidative stress is thought to play a major role in the pathogenesis of a variety of human diseases, including Diabetes, Hypertension, Atherosclerosis, Aging, Alzheimer's disease, kidney disease and malignancies [5]. It has been found that in MS dyslipidemia & elevated extra- and intra-cellular glucose concentrations result in an oxidative stress, which is defined as an imbalance between oxidants and antioxidants. Several mechanisms seem to be involved in the genesis of this oxidative stress [6]. Due to remarkable side effects of modern synthetic anti-diabetic, anti-hypertensive, anti-obesity and hypolipidemic agents there is an urgent need to search safe, natural, alternative and cheap therapeutic measure to replace harmful synthetic chemicals.

Alternative therapy includes are Ayurveda, Yoga, siddha, Unani acupuncture, Homeopathy, biofeedback, aromatherapy, relaxation, and many others [9]. Among them yoga is a cheapest, safest and effective therapeutic measure. The science of yoga based on three pillars i.e. Asana (time limit postural change), Pranayam (breathing exercises) and Dhyana (Meditation). All these practices strengthen and revitalizes all the systems, reduces oxidative and mental stress of the body. The Yoga asana are very useful for Metabolic syndrome patients as its pathology covers all the system of the body and by practicing these asana can revert the whole disease process. The main focus of this article towards the yoga asanas which not only prevent MS but also minimizes the long term complication [7]. There are several asana described in yogic sculptures for healthy individuals but out of them some asanas are very beneficial for MS patients are following:

1. Ardha Matsyendrasana (Half Spinal Twist)
2. Bhujangasana (Cobra Pose)
3. Dhanurasana (Bow Pose)
4. Halasana (Plough Pose)
5. Makarasana (Crocodile Pose)
6. Naukasana (Boat Pose)
7. Shalabhasana (Oculist Pose)
8. Shavasana (Corpse Pose)
9. Surya Namaskar (Sun Salutation)
10. Vajrasana (Thunderbolt Pose)
11. Yogamudra (Chic Union Pose),

1. Ardha Matsyendrasana : (Half Spinal Twist)

This asana mainly asanas practiced in hatha yoga. In sanskrit 'ardha' means 'half', 'matsya' means 'fish', 'indra' means 'king' and 'asana' means 'pose'. It literally means the half twist pose of the king of fishes. It strengthen the spine and reg-

ulates endocrinal system.

2. Bhujangasana (Cobra Pose)

Bhujangasana is also famous as a cobra pose in yoga. The meaning of 'Bhujanga' means 'cobra' snake and 'Asana' means 'Pose'. In this asana person looks like cobra snake. It is good for Gastrointestinal, and endocrinal system.

3. Dhanurasana (Bow Pose)

"Dhanur" means Bow in sanskrit. Dhanurasana or the Yogic Bow Pose, is so called as it resembles a bow when it is performed. In this practice body and the legs take the shape of the bow, while the hands look straight like string.

4. Halasana (Plough Pose)

As the name shows this its name derived from the Hala (plow) a popular farming tool commonly used in Indian agriculture. This asana rejuvenates body and mind.

5. Makarasana (Crocodile Pose)

In sanskrit, 'Makar' means crocodile and 'Asana' means a pose. Makarasana is a yogic pose useful for people with back and shoulder problems.

6. Naukasana (Boat Pose)

The literal meaning of 'Nauka' means 'Boat' and 'Asana' means 'Pose'. So this asana is known as Naukasana. In this asana body takes a shape of a boat. This boat pose is beneficial for a number of physical disorders.

7. Shalabhasana (Oculist Pose)

'Shalabha' is a Sanskrit term which means 'grasshopper' or 'locust'. In this asana persons leg resemble the shape locust. This Asana is very beneficial for lower back pain, Gastrointestinal, Urogenital and endocrinal system.

8. Shavasana (Corpse Pose)

Shavasana or the corpse pose is a yogic relaxation pose. The name derived from the sanskrit words Shava meaning "corpse" and Asana meaning "posture". Shavasana is the simplest and the main relaxation pose used in yoga. It is usually performed at the beginning and at the end of yoga practice. It reduces the metabolic rate, gives deep relaxation, reduces anxiety, alleviates mild depression and improves sleep.

9. Surya Namaskar (Sun Salutation)

The Sanskrit name "surya" here refers to the sun and "namaskara" means 'salutations'. Surya namaskara has been handed down from the enlightened sages of the vedic age. The sun symbolizes spiritual consciousness and in ancient times was worshipped on a daily basis. In yoga the sun is represented by pingala or sura nadi, the pranic channel which carries the vital, life-giving force. Surya namaskar is a combination of 12 asanas which are following:

1. Pranamasana (The Prayer Pose)
2. Hasta Uttanasana (Raised Arms Pose)
3. Hastapadaasana (Forward Bend Pose)
4. Ashwa Sanchalanasana (Equestrian Pose)

5. Adho Mukha Svanasana/Parvatasana (Downward facing dog pose)
6. Ashtanga Namaskara (Eight-angle pose)
7. Bhujangasana (Cobra Pose)
8. Adho Mukha Svanasana/Parvatasana (Downward facing dog pose)
9. Ashwa Sanchalanasana (Equestrian Pose)
10. Uttanasana (Intense Forward-Bending Pose)
11. Hasta Uttanasana (Raised Arms Pose)
12. Pranamasana (The Prayer Pose)

Surya Namaskar revitalize strengthen all the system of body.

10. Vajrasana (Thunderbolt Pose)

The literal meaning of Vajra is Diamond or thunderbolt and Asana means Posture or Pose. This yoga posture has been named after the shape it takes that of a diamond or thunderbolt. In this asana person adopt the shape of a Diamond or thunderbolt. It Rejuvenates the mind and body

11. Yogamudra (Chic Union Pose)

The 'mudra' word derived from Sanskrit word, which means 'closure' or 'seal'. Mudra hand positions are physical gestures that have an effect on the energy flow of the body. Here mudra means finger positions it is directly related with the changing spiritual and mental aspects of a person.

Scientific outcome of Yogasana in Metabolic Syndrome patients:

The practice of Yoga as a whole gives a great number of benefits which are following:

1. This asana give flexibility to the body and strengthen whole musculoskeletal system.
2. The moves and postures of the asana help all our internal organs function better the various poses regulates our blood flow, benefits the digestive system and makes it more efficient.
3. Yoga significantly decreases in fasting blood sugar and postprandial blood sugar level in diabetic patients.[8]
4. A significant decrease in Glycosylated haemoglobin (HbA1c) level also be noted in patients.[8]
5. Autonomic nervous system generally involved in diabetic patients but by practicing yoga, a positive impact also noted on autonomic function of body.[8]
6. Regular practice of yoga significantly decreases the oxidative stress of the body which plays a key role in insulin resistance and complication in diabetic patients[9][12].
7. Yoga also improves the lipid profile in diabetic patients which plays supportive role in its complications. This results in reduction of weight, BMI and waist hip ratio. [10]
8. Yoga pacifies mental stress and produce calmness in the mind of diabetic patients.[11]
9. Yogic practices significantly reduces complication by improving BMI, waist hip ratio, median fasting insulin, blood glucose level, Interlukin (IL-6) IL-6. Both IL-6 and interferon gamma (IFN- γ) level in diabetic patients.[12]

Conclusion

Metabolic syndrome is a cluster of different metabolic diseases caused by improper life style and diet. It is going to be a big burden for world and India too. The only safe, natural and cheapest preventive measure for Metabolic syndrome is "Yoga". Different yoga-asanas have been described by ancient scholars of india and possess very good healing effect on body and mind. As we know that in MS, every system of body has been involved in disease process including mind so to treat both body and mind and to revert the disease process there is none other therapy better than Yoga. In MS patients yoga significantly decreases blood sugar level and Glycosylated haemoglobin (HbA1c). Practicing yoga rapidly correct dyslipidemia, basal metabolic rate and waist hip ratio. As we know that the key factor for diabetic complication and insulin resistance is continuous high oxidative stress, a significant regression noted in MS patient practicing yoga daily. Autonomic nervous system generally involved in MS patients but by practicing yoga, a positive impact also noted on autonomic function of body. In combination with conventional treatment yoga provides a better metabolic control, a positive modulation of body and mind without any side effects in Metabolic syndrome patients.

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